Reply: Hering's Law of the Frontal Facial Branch

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Re: Reply to Hering's Law of the Frontal Facial Branch

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Sir,

We thank prof. Procianoy for his insightful comments on our short article concerning Hering's law of the frontal facial branch[1]. We fully agree that there is a lack of scientific evidence in literature to prove the pathophysiology of our findings. It is indeed hard to prove that contralateral elevation of the eyebrow is induced by either voluntary or involuntary contraction on an electromyographic level. However, according to our opinion, elevation of the contralateral brow due to voluntary contraction after ipsilateral paralysis is very much unlikely; in the case of voluntary contraction, the patient will attempt to elevate the affected side of the face, not the contralateral side.

Although it is understandable that prof. Procianoy uses the manuscript of Beaulieu, Andre and Mancini for his argumentation, an in depth reading of this respective article would quickly lead to the conclusion that their presented results do not reflect to ours[2]. This is due to the fact that their study population consisted of healthy volunteers, whereas our study population consisted of facial paralyzed patients. Their study showed that the eyebrow position does not change when the visual field was deprived via black contact lenses and when an external weight was placed on the eyelid the patient attempted to raise the both eyelid and eyebrow to obtain the same eyesight. As expected, eyebrow position will not change in healthy volunteers when the sight is covered by an object (such as a lens or glasses), however, the ipsilateral eyebrow position will (voluntary) elevate in attempt to raise against external weight, as explained before. Patients with facial paralysis also attempt to raise the affected eyebrow, like in healthy volunteers, but this is off course impossible due to ipsilateral impairment of the facial nerve. Therefore, in case of facial nerve palsy, we see that the contralateral eyebrow continuously is elevated and indicates that Hering's law also applies to the frontal branch of the facial nerve. Moreover, blocking the eyesight on the paralyzed side results in lowering of the eyebrow of the contralateral side.

There is no scientific evidence that muscular hypertrophy occurs in facial paralyzed patients, as mentioned by prof. Procianoy. Choe et al. and Choi et al., however, only have suggested this by writing: ‘‘we treated 34 patients who had a drooping face on one side after facial paralysis with thread lifting and botulinum injections to control contralateral hypertrophy and ipsilateral synkinesis’’ respectively ‘‘the non-paralysed side, which acts chronically against the weak antagonism of the contralateral muscles, usually presents with facial muscular hypertrophy, wrinkles, furrows and deviation of the mouth. Facial changes associated with facial sequelae can be attributed to ‘unbalanced’ muscular activity, ‘unbalanced’ muscular hypertrophy and ‘unbalanced’ pattern of facial expression’’[3,4].

Further studies, including electromyographic ones, for sure are warranted to further elucidate Hering’s law of the frontal facial branch and that of perhaps the other facial branches.

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